

Sowela Technical Community College

Master Course Outline

Course Name: General Chemistry

Course Number: CHEM 1010

Lecture contact hours: 45

Lab contact hours: 0

Semester Contact Hours: 45

Semester Credit Hours: 3

Catalog Description:

An introductory course including atomic and molecular structure, chemical nomenclature, measurement, and stoichiometry.

Prerequisites: "C" or better in MATH 1100 (College Algebra)

Co-requisites: None

Required Textbook and Supplies:

Chemistry, The Central Science, 11th edition, by T. L. Brown, H. E. Lemay, B. E. Bursten, and C. J. Murphy, Pearson Education, 2009.

Scientific calculator

Student Learning Outcomes:

Upon successful completion of this course, the student will be able to

- Use scientific vocabulary to effectively communicate chemistry concepts.
- Demonstrate basic understanding of general theories of chemistry including atomic theory, bonding, chemical reactions, stoichiometry, the periodic table, and chemical nomenclature.
- Discuss basic chemical reactions and write balanced chemical equations.
- Explain the structure, nomenclature, and reactivity for various chemical families.

Assessment Measures:

4 Instructor-designed unit exams 100 points each

Comprehensive final exam 100 points

Final class score will be an average of the three highest scores. The lowest of the four test scores will be dropped.

Expanded Course Outline:

Matter and measurement

Atoms, molecules, and ions

Stoichiometry: Calculations with chemical formulas equations

Aqueous reactions and solution stoichiometry

Electronic structure of atoms

Periodic properties of the elements
Basic concepts of chemical bonding
Molecular geometry and bonding theories
Gases
Acid-base equilibria
Additional aspects of aqueous equilibria
Nuclear chemistry